OCTOBER, 1890.

SOME one has sung of the garden in these strains:

Let long-lived pansies here their sweets bestow,
The violet languish, and the roses grow;
In yellow glory let the crocus shine,
Narcissus here his love-sick head recline;
Here hyacinths in purple sweetness rise,
And tulips tinged with beauty's fairest dyes.

And who that knows what a garden is, and enjoys it, could spare one of these flowers? Their beauty, their fragrance and their association satisfy the senses and inspire sentiment. The literature of history, mythology, poetry and romance is studded with allusions to these fair forms that bedeck the earth. But how frequently the bulbous plants are lacking in the gardens of this country! In some cases it is because their planting season is an unusual one. Planting in spring is taken as a matter of course, and plants requiring to be set in spring receive attention. In autumn the requirements of the garden may be somewhat forgotten, the owner may be away on vacation or traveling, and so, from one cause or another, the bulb-planting season is passed and the flowers that should make the garden bright and gay in early spring are lacking. It is proper, therefore, at this time to call special attention to these plants. The garden should be plentifully supplied with them, and thus be made attractive at the earliest possible time in the spring. With a good variety of bulbous plants pushing their green blades as soon as the heavy frosts are past, there will be no lack of interest in the garden, and thus there will be incitement to further timely effort to make it beautiful and enjoyable for the whole season. But the bulbous plants have another claim on our attention; for their ease of culture in the house window enables us to make our rooms delightful with their brightness and fragrance through most of the winter season. Dwellers in the cooler climates, where snows and ice hold sway for several months, feel the pleasure of plant association at this season more intensely than those who live in the warmer regions.

One of the satisfactory things in regard to planting bulbs is the almost absolute certainty of success in blooming them. There can be no failure of the plants to grow, and the blossom buds are already formed in the bulbs, ready to come forth after the brief season required for the roots to push and get sufficient strength to support the flowers. In the open ground the bulbs are equal to all the vicissitudes of winter and spring, are self-reliant and require no coddling.

For house culture the low-growing Duc Van Thol Tulips are the earliest to bloom, and they present a variety of bright colors, shades of red, rose, crimson, scarlet and yellow, and white as well.

In a four or five-inch pot from four to six bulbs may be placed. A good soil is formed with fibry loam for the principal part, to which is added a smaller quantity of leaf-mold and well rotted manure and some sand. This compost will serve equally well for potting all the Dutch bulbs. Fill the pots loosely with soil and press the bulbs in, settling them down even with the surface, give the pots a jar on

the potting bench to make all firm, and then place over another light layer of soil. A light watering at this time is sufficient. In the same way narcissus and hyacinth bulbs may be potted, only hyacinths, which are larger bulbs and make larger plants, require more room, and each bulb should have a four-inch pot. The pots are now to be set away in a cool and dark place, where the soil will not quickly dry out, and be left for the bulbs to make their roots. A very good way that is much practiced is to set the pots on the ground and cover them all over with coal ashes or sand. This must be in a shady place, and one where heavy frosts can not affect them. In about six weeks the roots will be well formed and ready to supply all demands the plant may make on them, and then the pots can be brought out and placed in light with more or less heat; as a rule, the foliage will be strongest if allowed to develop slowly in a low temperature, or one not over 50°. If one desires a succession of blooming plants, a few plants at a time can be taken out of

their cool rooting place while others are left for some time longer, and in this way the blooming season can be extended.

The Tournesol Tulips come later than the Duc Van Thol varieties; of these there is not so great a variety of colors. But, still later than these, and excellent for blooming in the house, are the Single Early varieties. These comprise some of the most beautiful kinds both in form and color.

The earliest Hyacinths to bloom are the Roman White. The bulbs are small, and half a dozen of them can occupy a six-inch pot. These and the Paper White Narcissus are raised in large quantities by florists, and brought into bloom by the Christmas holiday season. When the plants are brought out to the light and given heat and commence to push their leaves, water can be given, increasing the quantity as the plants develop.

A favorite way of raising hyacinths in rooms is in glass vases filled with water. Soft water is best, and a good means of keeping it sweet is to place a piece of charcoal in the glass. The water should come up close to the base of the bulb without touching, for in this case it is apt to cause it to rot. In raising the bulbs in this manner they require, as they do when potted, to be placed in the dark until the roots are formed. After placing the bulbs in the water glasses set them in a dark closet to remain several weeks. When a good mass of roots is formed they can be brought out into the room and placed at the window. If much water should be lost by evaporation, lift the bulbs a little and supply what is needed.

The care of hyacinths in water glasses is much less than in pots, and in this way there is no danger of their lacking moisture. But in glasses or in pots of water the great danger to guard against in house culture is a hot and dry atmosphere. The air of the room should be tempered with water evaporated over the heating apparatus, and in this form it is as much healthier for its human occupants as for the plants. The temperature where the plants stand ought not to exceed sixty or sixty-five degrees. In blooming the bulbs in pots of soil great care should be taken to supply the pots liberally with water during growth and after the bloom appears. The spikes of flowers are often spoiled by allowing the soil to become dry.

Many persons select the double varieties of hyacinths for the house, but the single varieties are greatly superior for this purpose, blooming much more freely than the double ones either in vases of water or in pots of soil.

The bulbs of the Polyanthus Narcissus can also be bloomed in water glasses in the same manner as hyacinths. All have heard about the so-called Chinese Sacred Lily, a narcissus which produces a very large, strong bulb that throws up a number of spikes. The spikes of this narcissus are, however, quite small, containing but few flowers. Our own experience with it, raised side by side with some of the well known Polyanthus varieties, all in water, substantiates the fact that the latter are the most desirable with the same kind of cultivation, giving larger spikes and with finer individual blooms; and, besides, the bulbs are much cheaper, costing only

SINGLE AND DOUBLE HYACINTHS.

about one-third as much. This opinion, we believe, will be confirmed by all who will give the different bulbs a test under like conditions.

When narcissus bulbs are potted in soil there is the same danger of allowing them to become dry as has been noticed in the case of hyacinths, and when this happens the blooms are sure to be injured. Narcissus bulbs need even more water than hyacinths, and if the soil is kept in a state of mud it will be far better for the flowers than if drier. An excellent way to bloom tulips, hyacinths and narcissus is in pots or baskets of swamp moss or sphagnum; this material, which holds water

like a sponge, is much less likely to get dry than soil, and will give excellent results. If the bulbs are set in damp moss and first placed away in a cool, dark place, as already described, until an abundance of roots has been made, and then brought out to the light and kept in a cool and humid atmosphere, one is almost certain to attain the most perfect success.

Snowdrops, snowflakes and crocuses can also be raised in pots for winter blooming, but they are more impatient of heat, if possible, than hyacinths and tulips, and it is absolutely necessary to bring them along in a cool temperature up to the time of blooming.

The Freesia refracta alba is another very satisfactory winter blooming bulb, and can be treated practically the same as hyacinths and tulips.

Bulbs should be employed liberally both for the greenhouse and the window garden, and their bright, fragrant flowers will always be admired. In the open garden they should be planted in beds, in groups and in masses. They should form a dominant feature of the garden in early spring.

The blooming season of bulbs in the open garden is frequently shortened by a term of hot weather, such as we often have in spring, sometimes in April or May, and lasting several days, or a week or more; as we all know it is not uncommon to have in the middle of spring a succession of hot days of almost midsummer heat, bringing forward vegetation with great rapidity, and then a reaction occurs and cold winds prevail, whipping and injuring the newly unfolded leaves and flowers. This, too, is a danger period of frosts. To provide against the damage that may occur at such a time, and also to prolong the blooming season in any event, it is a good plan to mulch bulb beds with some nonconducting heat material; a covering of about two inches of coal ashes carefully placed over the beds in the spring, just before the bloom appears, will prove of great benefit; sawdust, if easily procurable, would be even better, and in some places old pine needles, or the fallen and decaying foliage of other evergreen trees, can be obtained, and is excellent for the purpose.

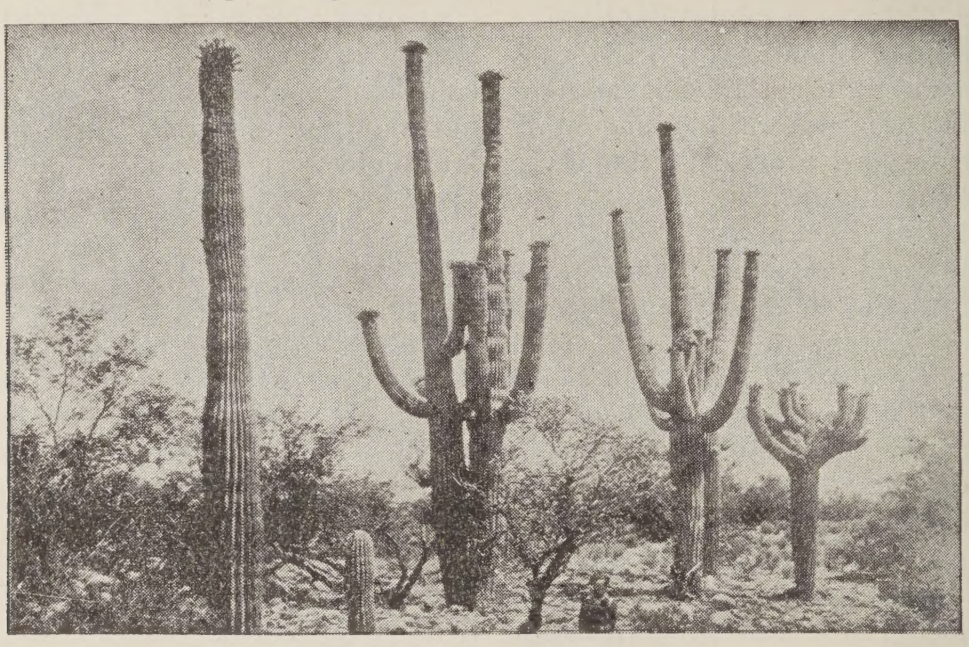
In the preparation of a garden bed or border for hyacinths it is best to take some special care. The application of stable manure before planting is not desirable as it has a tendency to cause the bulbs to decay. But the addition of a quantity of leaf-mold, and if the soil is heavy a good dressing of sand, will be found beneficial. About four inches of the top soil can be removed from the space intended for the bed and laid on one side; spade over the whole as deep as possible and work in the leaf-mold, and sand, if desired. With a sandy soil, leaf-mold alone makes an excellent dressing. Rake over the bed, freeing it from all stones, and giving it a smooth, level surface. Parallel lines can be drawn, and intersecting ones, and the bulbs placed so as to show solid masses of color or designs of any desired patterns. At the point where the lines cross press the bulbs down into the soil even with the surface, and when all have been set cover the whole bed over with the soil which was first removed, thus leav- them with about four inches of soil entirely over them. Before the ground freezes hard the bed should have a thick covering of leaves for a winter protection.

Narcissus bulbs, the single and double varieties, can be planted in the garden in the same manner as above described. The Polyanthus Narcissus is not hardy, and in cold climates is used only in-doors. Tulips in the open ground need only three or four inches of space between them, but otherwise may be planted like hyacinths.

With plenty of bulbs in well arranged masses and a good collection of herbaceous plants selected with reference to their time of blooming, the garden may be made continuously bright, attractive and interesting from early spring until winter closes in.

AMONG THE CACTI.

The late ASA GRAY, in his Montreal Address of 1884, published in his *Scientific Papers*, has touched upon that characteristic of the vegetation of the southwest, which makes it most strange to the student. He says: "It is now becoming obvious that the Mexican plateau vegetation is the proximate source of most of the peculiar elements of the Californian flora, as also of the southern Rocky Mountain region, and of the great basin between. It is from this source," he continues, "that are derived not only our Cacteæ but our Mimoseæ." In conclusion, he says, that he "had formerly recognized this element in our North American flora," but has "only recently come to apprehend its full significance." This happy generalization, the result of that exact and long-continued study which placed GRAY in the front rank of men of science, may well serve to introduce the reader to some of the prominent members of the Cactus family. Let us begin by thinking of them as children of an Aztec civilization, proud, passionate and semi-civilized.



CEREUS GIGANTEUS.

In the great Arizonian deserts and barren mountains, on the high New Mexican mesas, deep in the hot barrancas of Mojave, and Death Valley, along the yellow rock-wall of the lower Gila and Colorado, in the great rainless land of the strange, wonderful southwest, the traveler finds these interesting plants. It is the land of perished races, whose rock-dwellings were hewn in the cliffs, whose prehistoric irrigation works now lie in a vast wreck, and whose story is written in pictured signs and cactus-covered mounds, where the ancient communal houses of the tribal families once stood. Ruins of great pueblos and other pueblos yet occupied, but centuries old, still crown flat-topped, isolated peaks, crumbling adobé walls of Jesuit missions and huts of Mexicans are there. The smelters and quartz mills of American miners, and the frontier towns of the American pioneer, who has set his hands to the task of reclaiming by ditch and reservoir the ancient irrigated valleys so long run waste, the home of Apache, Comanche and Navajo—these, also, lie in the great deserts, like seeds of corn in an open field.

One who journeys in this land of many secrets learns at last to understand its fascinations. No where else can one find such clear, deep skies, such glorious nights of starlight and moonlight, such mountain walls and islands, such magnificent rock sculptures, carved by bursting lakes and oceans, by flow of glacier and heave of earthquake. From the feet of mountains of orange, violet and azure, the white and gray sands sweep away into illimitable distance, and the crimson, golden and purple flowers of the desert bloom in multitudinous masses, the perfect expression of all that is most glowing, and most terrible in the great border lands of the southwest. Open the records of the early settlements, and read of this cabin burned

by Apaches, that village raided, and of a few fugitives crossing by night the cactus-covered desert to some place of refuge—a mother with babe in arms, a pioneer carrying his wife for mile after mile in the darkness, forcing his way through Opuntia hedges and over acres and acres of spine-covered leaves — and you will begin to understand the dreadful side of the cactus family.

CEREUS PRINGLEI.

Dr. ENGELMANN'S classification of the Cactaceæ is under two sub-orders, Cacteæ and Opuntieæ, and the former is again divided into three arbitrary genera, Mamillaria, Echinocactus and Cereus. About forty species of the Cactus family are ranged under these various heads. The hybridizer and the florist have come to recognize the possibilities of these strange plants, and many new and brilliant flowered Cacti can be looked for. The horticulturist is more slow to discover the market value of the refreshing fruits of many species, though they appear in the markets of San Antonio, Santa Fé, Tucson and San Diego. The use of some species for hedges is much more obvious and promises to become very general in many districts of the southwest. Even in the San Joaquin Valley there are many cactus hedges. One or two fruit growers in California are trying to obtain a better fruiting Opuntia from the O. Ficus Indica, which grows about the old Missions, and is one of the best for market cultivation.

ECHINOCACTUS EMORYI.

The most famous of the Cacti is undoubtedly the great Cereus giganteus, which is found in Arizona and New Mexico, and attracts the attention of every tourist. The average height of these plants is from twenty to thirty feet. Some grow in single shafts, others are branched, like Candelabra. The very numerous cream-

white flowers add greatly to the attractiveness of this Tree Cactus. The large, oval fruit is scaly in appearance, edible and especially enjoyed by the birds who live upon it in the season. The fruit of the smaller Cereus Thurberi is even larger and more delicious. Both species are easily and quickly grown from seed, which, however, is rarely to be obtained in the market.

HEDGE OF OPUNTIA TUNA.

The following extract from the botanical report of the exploring expedition, under Lieutenant A. W. WHIPPLE, and published by the United States government in 1856, shows the use the native Indians make of the fruits of the Cereus. The line of route lay along the Williams' river to the Colorado of the west, and was traversed from February 4th to February 22d, 1854. The note refers to Cereus giganteus:

"This is the most northern true Cereus that we have, being found as high as latitade 34°, while C. Greggii and Emoryi are found only a little above 32°. This plant has a considerable range, extending south from this place to near latitude 28° in the vicinity of Guaymas Sonora. The fruit under the Mexican name of *Pitajaya*, pronounced Pit-a-zi-ah, or Pit-ai-yah, is a great source of sustenance to the Mexicans and Indians of the region where it grows. Conserves and molasses, or syrup, are made from them which are preserved during the winter season for future use. They are very pleasant to the taste in a fresh state. As the fruit grows near the top of the tree at an altitude of twenty-five to fifty feet, and being very large and pulpy, if permitted to ripen and drop to the ground, they burst and are almost rendered unfit for use. The Indian mode of collecting them is to take a long light pole, make a fork at the top by tying a short piece to it, by which they contrive to bring them within reach. Birds and every kind of animal and insect that can reach them are so fond of them that many of them are thus destroyed. My friend, Mr. SCHOTT, of the Mexican boundary, who has lately returned from that desolate but rather interesting region, informs me that still further south this interesting plant is replaced by another not so large—but still a great cactus. This is probably the one collected by Mr. THURBER, described and named by Dr. ENGELMANN in *Silliman's Journal*, C. Thurberi. The pitajaya of this species, according to Mr. SCHOTT, is the principal support of the Papige Indians. It is much larger, sweeter, more juicy than that of the C. giganteus. The color of the pulp is also of a much brighter red."

The peculiarity of the internal structurs of cactus plants is no less striking than their external appearance, as another extract from the same notes on C. giganteus, here shows:

"The wood at the base of old specimens becomes a perfect hollow cylinder, and from thence upward to the first branches, instead of being solid it becomes a reticulated net-work of bundles of wood continuing the hollow cylinder as is seen on a smaller scale in the wood of Opuntia arborescens."

This as to the landscape appearance where these vegetable forms prevail:

"These trees in abundance give the landscape a very peculiar appearance, and from their novelty and entire dissimilarity to any others, at first is not only curious but pleasing, but as the eye becomes accustomed to it, a gradual transition takes place in one's feelings and from being pleasing they at last become monotonous and repulsive. This feeling, however, may be somewhat accounted for by the surrounding sterility of the land. As far as the eye can reach in the valleys or on the mountains, little else but rocky boulders and the stately yet awfully somber aspect of the Cereus giganteus can be seen."

AGAVE PALMERI.

The Echinocactus Emoryi is another magnificent species of Cactus, found in Arizona, and measuring three feet in height and one and a half to two feet in diameter. It is of a globose form with thirteen to twenty tuberculated ribs and set with strong spines two to three inches long. The flowers are about three inches long, purple on the outside, petals red with yellow margin, very odd and showy.

Echinocactus Wislizeni is another of the superb oval Cacti, and is sometimes even larger than the preceding, though less showy in bloom. Plants that are four feet high are often found in the Rio Grande region, and they extend north to Utah. These great spine-covered masses represent to most tourists the true Cactus type more than the Cereus or Opuntia species do. In the southwest, from the middle of Texas to Southern California, theyare called "Stools of Repentance," and an immense number of mythical stories are told about unhappy mortals who took seats on particularly healthy specimens of Echinocacti. Sometimes it is said to "happen accidentally," sometimes "from force of circumstances," as when some cowboys "on a tear," conclude to discipline a tenderfoot.

The Opuntias, in appearance, divide into two classes, some being tall, branched and shrub-like, and others low and prostrate plants. The flowers are mostly large and handsome, and the fruits are usually edible.The fine Opuntia angustata is as yet hardly known to our gardens. It is found in the Cajon pass and on the western border of Arizona. Its growth is dense and a strong plant covers the ground to an extent of six or eight feet in diameter. The flowers are insignificant and

of a rich brown color. The fruits or berries are oblong, about one and a half to two inches in length. The joints are ten to twelve inches long, four to five inches wide, narrower below.

Opuntia versicolor is one of the oddest of all the Opuntias; found in Arizona growing more or less in tree shape, very much branched and six to eight feet high

OPUNTIA ANGUSTATA.

with a very heavy trunk below. The joints are extremely slender and the spines long. There is no beauty about the plant, but it is a very odd specimen of the vegetable kingdom, and on account of its peculiar growth attracts considerable attention.

Growing with the Cacti one finds various species of Yuccas and Agaves. The latter belong to the Amaryllids, and are an American genus of, perhaps, one hundred species, nearly all Mexican, though about a dozen are Arizonian or New Mexi-

OPUNTIA VERSICOLOR.

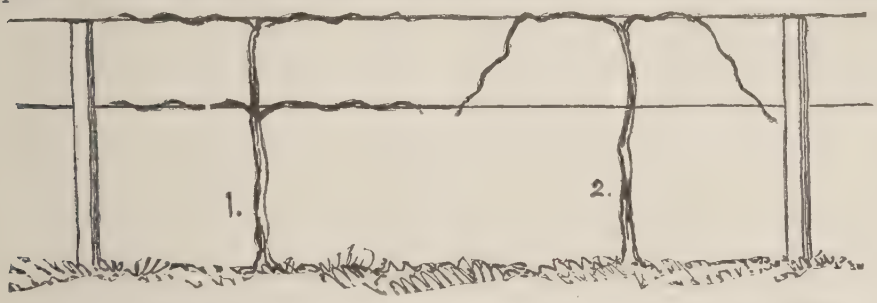
can. NEWBERRY collected one species near Peacock Springs, another was found by Lieutenant EMORY, on the Colorado desert, in 1846, and the third, a most beautiful species, named after the late HENRY SHAW, of St. Louis, is found near the Pacific, in the extreme southwest corner of the United States. The Agave Palmeri, one of the finest of the Agaves, is a species not well known as yet under cultivation, as it is of more recent discovery. It is found in Arizona, near the border of California, and in Lower California. Its metallic, glaucous leaves are

very prominent and deeply concave. In general appearance it is not unlike the better known Agave deserti, but is much more graceful and of stronger habit, which qualities make it a most desirable ornamental plant. Its seed is offered occasionally by collectors. The flower stalk is tall, but much more graceful than that of other strong growing Agaves which are more common in gardens.

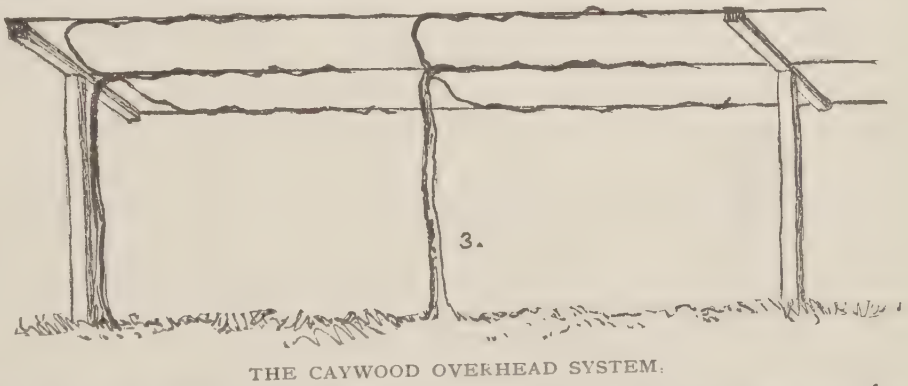
The necessary limits of this article preclude a description of many Cacti, Agaves and other of these characteristic species of the southwest, whose prototypes and nearest relations are found on the high tablelands of Mexico. The field of study is a large one and is very important, not only in a scientific way, but also from the economic and the horticultural points of view. CHARLES H. SHINN.

THE VINE ON THE HUDSON.

I send you herewith sketches of the different methods of training the grape in the Hudson valley fruit section. Figure 1, known as the "Kniffin" system, is the oldest and by far the most extensively practiced. The vine is allowed to grow at will the first season after planting; the second year it is cut back to two or three buds from the ground, and but one strong shoot allowed to grow, this is tied to a stake at frequent intervals as the growth increases in order, both to keep the main stem straight, and to obtain a height sufficient to reach the top wire, as a shoot growing upright without a support will grow more rapidly than when drooping or running on the ground. The third year posts are placed between every second vine, and two wires (No. 10 galvanized) are strung, the top one five and a half feet from the ground, and the second two feet below. The vine, if tall enough, is then tied to each wire, and if longer, is cut off above the top wire. The vine now being of but one year's growth from the ground will put forth bearing arms its entire length; all below and between the wires are rubbed off, leaving two shoots to run horizontally on each wire on either side of the vine. These will produce as much fruit as the vine at this stage should be allowed to bear. The next season these arms are cut back to six buds from the original vine, and each succeeding season care is taken to leave growths direct from the original vine, as near the wire as may be, for arms for the next season's crop, cutting away the previous year's arm back to the trunk and all other superfluous growths, thus keeping the vine continually in its original shape. The young growths proceeding direct from the main stalk seldom set any fruit, consequently mature the wood and buds better for the next season's fruiting than those from the old arms which have borne fruit, besides avoiding the unsightly stub which would result from the latter course, although it frequently can not be avoided.



THE KNIFFIN SYSTEM. THE SAME MODIFIED.



THE CAYWOOD OVERHEAD SYSTEM.

Figure 2, the two arm system, is a modification of the Kniffin, or four arm, system. The training is precisely the same up to the third year, when we dispense with the two lower arms and cut the top ones sufficiently long to bend down and reach the lower wire, as shown in the engraving. In the Kniffin system we always find the

best and finest fruit on the top wire, also the least rot and mildew, as we always find our finest apples, pears and other fruits on the tops of the trees. The sap is determined to the extremities, what they cannot absorb is left for all below. By removing the lower arms those remaining at the top receive the full flow of sap. By bending the arms down the excessive growth of vine is checked, and the fruit receives correspondingly more of the support of the vine.

Figure 3, overhead training, introduced by my father, embraces the same general principles as figure 2, and is practiced here to a limited extent. It was intended to protect the fruit by the foliage from hail and birds, and to allow of a free circulation of air, all of which it does. It was also intended to allow of cultivating the vines both ways, but it has been found in practice that to get them sufficiently high to admit of a man and horse passing under when loaded with fruit would require a step-ladder to gather the fruit and to prune and tie up the vines; however, by cultivating but one way, as usually practiced, there is no difficulty. In our vineyards we employ the two-arm system.

W. C. Caywood.

AMATEUR HYBRIDIZING.

The vast majority of flower growers are perfectly content to buy seeds of some reliable florist and trust to his ingenuity to bring forth new varieties to please their half awakened tastes. But there are a few daring spirits who are not content to sit quietly down and be supplied by others with floral good things. I believe there are many such thirsty souls who are eager to do something new for themselves, but who have had small opportunities for learning what they could do. And for the benefit of such I write, hoping to initiate them into the rare delight of watching some unfolding flower, conscious that it will be like nothing else, and that this new beauty is the work of their own hands. I trust, too, that some of the contented ones whose eyes fall on these lines may read and be awakened.

To the uninitiated the whole affair of cross-fertilizing is a mystery, and the idea prevails that only a few skillful florists can do it; but really the operation is very simple. All the knowledge required is enough understanding of botany to know the difference between the stamen and pistil, and all the skill needed is a reasonably steady hand. The tools are few and simple. A small, soft, well pointed camel's hair brush, a pair of sharp, fine pointed scissors that cut well at the extreme points, and fine, thin, light muslin or cheese cloth. Add an ounce of common sense, stir well; don't forget to add the common sense.

Hybridizing, or cross-fertilizing, to be successful should be done when the plants are in full health and vigor, and before they have become exhausted by blooming or seeding. In fact, the proper time for seeding is the proper time for fertilizing, and right here is where many, in fact, most people, make a great mistake in seed-raising. Instead of waiting until the middle or end of the blooming season to let your plants go to seed it should be done early in the season.

If you are anything of an observer you have noticed that on nearly all plants, both annuals and perennials, the first two or three blooms are somewhat weak and defective, and then strong, perfect flowers are formed. As soon as this stage is reached is the time to save seed. Select a good, perfect, strong and well marked blossom and allow it to seed, noting if it forms a strong head, if not cut it off and try again. If you wish plants of great vigor next season, those which are able to withstand the attacks of disease and insects, which will sprout quickly when planted and mature early, do not allow more than one seed-pod to mature at a time on one plant, unless the plant be a large one. This is somewhat of a digression, but as it all applies to hybridizing, it is hardly amiss here.

The proper seed time, that is, with the first perfect flowers, is also the proper time for fertilizing. I do not say that either it or seed raising cannot be done after either moderate or profuse blooming, but just in proportion as the plants have bloomed will the seed be weakened in vitality, a most important quality in seed.

It will, I think, be best to start with the presumption that you know nothing of botany, for I think that few of the vast number who raise flowers, and do it well, can correctly name their parts.

The parts of a flower are, in their order, beginning at the stem, calyx, corolla, stamens and pistils. The calyx being the outer envelope, usually green, the corolla next, is usually the handsome part of the flower and is all in one piece, like that of the single petunia, or composed of several leaves called petals, as in the rose. These parts are, for the most part, simply ornamental, the useful and necessary parts, and those with which we have mostly to deal, are the stamens and pistils. The stamens are the parts which bear the fine dust known as pollen, and are quite commonly attached to the corolla at their base. They are of various forms, but usually a slender stem bearing a head, shaped something like a kernel of wheat, which is known as the anther, and which, when ripe, bursts and scatters the pollen. This latter is a fine granular dust, quite often yellow, but sometimes brown, white, etc. The pistil is the part bearing the seed at its base in a pod, of various shapes, known as the ovary. This ovary is surmounted by a part of various shapes, usually with a stem somewhat stouter than that of the stamen, known as the stigma, which when ripe, or in proper condition to receive pollen from the anther, is usually slightly sticky.

Having gained a knowledge of the parts we are to handle let us proceed to operate. Suppose you have a pansy that is beautifully marked but rather small, and one of great size and vigor of growth but plain colors and you desire to unite these qualities, or you have a very plain one that is delightfully fragrant, and you wish to give that fragrance to a handsome one that lacks it, or, perhaps, you may fancy trying a light and a dark one to see the result. Select a good flower on each plant opened at nearly the same time, choosing the most vigorous plant to bear the seed, and as soon as the flower is open enough cut off every stamen with your scissors, and tie a small bag of the gauze cloth carefully over the flower to prevent mixing by insects; cover the other flower in the same way and for the same reason, but do not cut off the stamens. As soon as the anthers of the latter flower burst and show the pollen take off the gauze bags, and with your brush take some of the pollen and place it on the stigmas or extreme ends of the pistils in the flower that you cut the stamens from. Replace the gauze bag upon the latter flower, and allow the seed to ripen. Do not allow the plant bearing the seed-pod to bloom much until after the seed is ripened, but keep most or all buds picked off from it until the seed is gathered.

As the pansy is rather a hard flower to handle it would be better for the beginner to try petunias, nasturtiums, or some other flower with the parts in full view.

This is the process of hybridizing and cross-fertilizing, and were this article not already too long, I would give a few further hints, tell you how double flowers are produced, and of my own pleasure and success in this delightful pastime.

D. M. Farnsworth, *Marquette, Mich.*

ASCLEPIAS TUBEROSA.

The butterfly weed, or pleurisy root, Asclepias tuberosa, is a native wild plant and the most showy of all our milkweeds. While it is chiefly seen in its native habitat, the dry hills and fields of this country and Canada, it is of its color capable of producing a most brilliant effect when grown as a lawn plant, while with others of the same species it is much prized abroad as an ornamental one. It is said that the roots themselves form part of the stock of growers of bulbs and plants in other countries, while here it is commonly looked upon as one of the pretty weeds of the fields. In form the root is large, fleshy and white, and is, as one of itt names, Pleurisy Root, would indicate, much used medicinally. The roots send up stems some two feet high, hairy, very erect and quite leafy, branching at the top, where they terminate in numerous crowns of bright orange-colored flowers, exceedingly showy and able to be distinguished at a long distance. In this species the juice is scarcely milky and varies in this respect from other milk-

weeds. The flowers are narrowly oblong, borne in clusters, the petals and crown of equal length. It is more common southward than in the Middle and Northern States, though I have heard friends speak of it as being plentiful in Michigan, where it is seen in company with a pink blossoming variety. It blossoms from July to September, and at a time when its flowers are most to be appreciated. At the end of summer, and like other milkweeds, it bears pods, hoary, pointed, and containing the same long, silky down. It cannot be too highly recognized by, or recommended to the lover of flowers as a garden or lawn plant. Most of the summer it is a plant of modest growth and unassuming appearance, waiting to blossom out under the intense heat of July and August into a wonderful thing of beauty not at all common in its way, but always much admired and commented upon.

ASCLEPIAS TUBEROSA.

Of the Asclepias there are, I believe, some forty species, half of which are natives of our own country and quite interesting, though none are more so than A. tuberosa.

H. K.

SUMMER'S ELOPEMENT.

I boldly assert, and I'll prove to you yet,
That Summer, though fair, is an arrant coquette;
She is losing those staid and reliable ways
That made her so dear in the long ago days,
Has strange moods and fancies, and I have few doubts
She indulges at times in sly fits of the pouts.

Her herald, the almanac, though it may state
With perfect exactitude some certain date
When we may expect her, in garments of green,
With borders of blossoms to trip on the scene,
It is growing to be almost certain as fate,
That Summer to all her appointments is late.
That this is a fault, and a bad one, you'll own,
Would that it were her most deplorable one.

I've noticed a tendency, time and again,
Of her wishing to test the affections of men;
She'll sigh on you, cry on you, saucily smile on you,
Pet you, and fret you, and try every wile on you;
And when you have learned her fair presence to love,
She'll leave you as one would a badly frayed glove.
If a coquette's maneuvers don't lie on those lines,
I'm free to confess that I don't know the signs.

I'd been the whole season her own gallant lover;
I'd tramped miles and miles some new charm to discover;
I'd risen at day-dawn to watch her smile break,
Like ripples on some misty, moon-lighted lake;
Had leaned at the noon-tide upon her fair breast;
Had been by her warm, gentle touches caressed;
Had joined in her matins with breezes and birds,
Unfretted by rules and untrammelled by words;
And when her soft vespers through wood aisles came ringing,
Had joined in as well as I could with the singing.

No stranger was I, for neath her gentle spell
I had made friends with all things which in her realm dwell;
By being observing, discreet and polite,
I had learned to know most of her kin-folk by sight;
She had called me to see how, in far away places,
The spiders were weavlng their fine, filmy laces,
And held me entranced 'till they wrought all together
The signs which foretold a long, wet spell of weather.

At the old tabby willows she'd bidden me peep,
While they rocked all their wee pussy willows to sleep;
Her green roof had shielded me from the storm's wrath;
Her blossoms had scattered perfumes o'er my path;
She had showed me the favor a sweet smile discloses,
And bordered my pathway with lilies and roses;
Aud she had invited me over and over
To lie down and rest on her couches of clover;
I'd no secrets from her, and you'll surely agree
That she should not, in sooth, have had any from me.

I had learned every note of the summer's soft voice;
I had carolled and danced when she bade me rejoice;
Had searched all the banks of her deepest hid bowers.
And learned the sweet language of ruby-lipped flowers;
Been fanned by her breezes, and loved her sweet looks,
And learned of the Summer as men do of books;
And somethings I've borne as a man and a brother,
Which, to put the case pat, I'd not take from another;

For, when she had lured me to some far off dell,
By those ways so witching she knows but too well,
'Twas hard to hear voices just over the hill,
Cry out, in derision, "whip-poor-will—poor-will;"
Now, who they mistook me for, I cannot tell,
Some other wight, mayhap, she'd lured to the dell;
But, surely, to punish me was their intent,
For they halloed and halloed wherever I went,
And I fancied, though whether it is so I can't say,
That I heard her laugh echoing far and away.

Harder still, when I burned from the stinging disgrace,
And the blushes which tingled my blood-suffused face,
To hear all the owls in the neighboring grove,
Who all seemed to know I was mocked by my love,
Hoot loud, in derision, till all things turned blue,
"And who did you come, sir, to whit, sir, to whoo?"
And these, please remember, the whole world avers,
Are some trifling, low-lived relations of hers.

And even, next day, with that curiosity
Which sometimes is coupled with strange animosity,
Peeping into a nest as I sadly passed by,
There arose a most loud and impertinent cry;
'Twould seem I had taken each life in the wood,
And the jays were determined to have my heart's blood,
For they shrieked, screamed and shouted, while I was in sight,
"Kill him! kill him!" and "kill him!" with all of their might;
And this is the way that her vassals demean
A loyal, true lover who dotes on their queen.

And this, after all the sweet favors she'd shown,
Pretending them meant for her lover alone!
Can you longer doubt that those smiles were sweet arts
Worn to lure and entrap young, susceptible hearts?

Why, at that very moment I wore in a locket
Some pressed flowers of her's in my lead pencil pocket.
Ah! if she were constant, how could it have been
That they should rail at me, her kith and her kin?

But the worst was to come; while much hurt by these slights
I still could have basked in her wondrous delights,
Still lived in the light of her beautiful eyes,
Nor ever have wished myself one whit more wise,
But that I imagined my love had grown old
And stale to her ladyship; surely more cold,
Sedate and retiring her manner had grown,
Illy matched with the still fervent warmth of my own.
Soon came the denouement; I'd not long to wait;
The affair as it happened I'll fully relate.

I had wandered, one day, in the heart of the woods,
Down deep in her closest vine-draped solitudes,
To keep tryst with Summer—in much the same way
I had the whole season been doing each day.
I knocked at the door, but from the chill air
I quickly inferred that no Summer was there;
Glancing hither and thither and quickly around
Now what do you think, lying there on the ground,

I swiftly discovered? 'Twas plain she was gone,
In her soft, vernal raiment—my beautiful one;
The roseate robes which at evening she drew
To shield her soft form from the damp falling dew,
Her breezes, her mists, and her songsters in vain
Might be sought over meadow and upland and plain;
Ah! what did I find? O, the message was brief,
'Twas written on one small, gilt-edged, crimson leaf:
"Dear Friend and Companion: To thee I am lost;
I eloped yesternight with my lover, Jack Frost."

DART FAIRTHORNE.

PRUNING AND TRAINING THE GRAPE VINE.

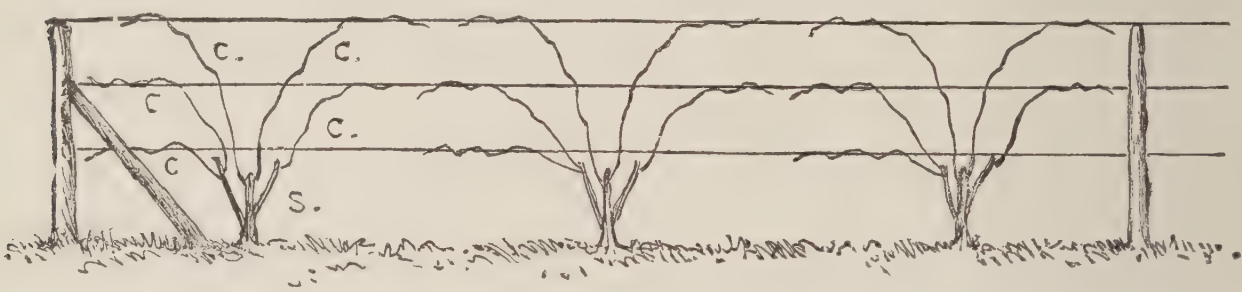
The method employed in pruning and training vines of the Chautauqua region is here described:

The first year, on planting, the top is cut back to three or four buds. No other pruning is given this year. The second year cut back to five or six buds, and when the new growth is about a foot long remove all but the three strongest shoots; these are to be grown for canes for fruit bearing the third year. The third year tie up two best canes only, each three or four feet long. This year is the time for putting up the trellis.

In building the trellis use posts and stakes each seven feet long. The end posts are of about the size of a sawed stick, four by five inches. The stakes are about the size of a sawed stick, three by four inches. The end posts are firmly braced by a stick three by four inches and ten feet long. Stakes are set along the row, one for every three vines. Number nine wire is used. The sharpened stakes are driven two feet into the ground, leaving five feet above ground. Three wires are used; the lower wire is fastened two feet from the ground; the second wire three and one-half feet, and the third wire at the top of the post or stake, as shown in the illustration. The fourth year from planting put up three or four canes, each three feet long. The fifth, and each year thereafter, put up five canes of three feet each, or not to exceed forty-five buds.

Nearly all vineyards are trained on what is called the "fan" system, the vines being spread out like an opened fan. The position will be somewhat as shown in the engraving, where that portion indicated by the letter S represents the permanent stock with three branches, and those parts marked C the annual bearing canes. Only one or two canes are tied to the upper wire, the remainder being tied to the two lower wires. The object is to get, on all the space between the upper and lower wires, an even distribution of the new growth and of the fruit.

Another mode of training is to have but two wires, (posts and stakes of same length as above,) and to place the lower wire two and one-half feet from ground, and top wire on top of stakes. An old cane is trained each way along the lower



wire, and five or six canes for bearing reach from the lower to upper wire. This is called the "two arm system," but is inferior for many reasons to that first given.

Besides the five canes left for bearing, as described, lower down on the old cane there are left two or three spurs. A spur is a cane having two, or not more than three, buds, and its work is to grow new wood, but not fruit to any considerable amount. Vineyards are pruned at intervals between December 1st and May 1st. The best single month is probably March, but there is not so much difference as many claim in the time when done between these periods. Pruning should not be delayed beyond May 1st, as soon after that the buds push out the new growth and there is an active flow of sap.

Until, say, five years ago the distance for planting was eight feet by eight. Now the rows are made nine feet apart, and vines eight, nine or ten feet in the row. More generally nine.

The above is for the Concord vine, our main variety, and which we mean when we say grape vine. Distances of other varieties in some cases will vary. Delaware may be put six feet in the row; the Niagara should be twelve feet. For Martha, Worden, Pocklington, Brighton, Hartford, Catawba, Moore's Early and Rogers same form of trellis and distance of planting as for Concord will do. The pruning will also vary with different varieties. The Catawba should have only about two-fifths as much wood as Concord.

I wish to add, that many of us think that the "ideal" trellis is yet to come. As an experiment, which so far is a success, I have some Worden vines set only five feet apart in the row. I use eight feet posts and stakes, the trellis thus being six feet high above ground. This being the first year of bearing, I only put on the two lower wires. Next spring I shall put on two wires more, so that the completed trellis will be, lower wire two feet from ground, the three upper wires sixteen inches apart. After the second or third bearing year my original plan was to remove each alternate vine, leaving them ten feet apart in the row. A Pennsylvania vineyardist has suggested leaving all the vines and training one vine to the two upper wires. The next to the two lower wires, and so on the entire row. In Brocton, I believe there is a vineyard with four wire trellises. These high, roomy trellises become a necessity with our six ton per acre production of grapes. Six feet vertical space is none too much to give the needed ventilation. I should have added that we give no summer pruning. If on a three wire trellis, utilizing five feet vertical space, there are only forty-five new bearing buds put up there will be no need of removing any surplus growth. In fact, there must always be a luxuriant, healthy growth of foliage to secure the finest quality and the most perfect ripening of the fruit.

The methods here described are prac-

ticed by men who have the care of ten, twenty, fifty, and even as high as one hundred acres of vineyard. We are growing finer grapes to-day, and at one-third the cost we did twenty years ago.

S. S. CRISSEY.

ODDS AND ENDS.

In many gardens there are old shrubs that have evidently "seen their best days," but which the owner does not like to dig up and throw away. Why not try the "renewal" plan? Select the best shoot the plant has, and cut away all the rest of it. Dig about the plant and remove most of the old, exhausted roots. Enrich the soil and make it mellow and light. In nine cases out of ten you can secure a healthy plant from the old one in this way.

I know a farmer who "renovated" an old row of currants in this way. He cut out all the old wood and pruned the roots. He spaded up the soil well, and worked manure into it. Then he put old mortar, sand, and the like about the bushes to keep the weeds from getting a start. He allowed the hens to wallow in this, and they kept the worms from depositing eggs in the soil and preying on the bushes. The first season the canes made a growth of two or three feet. Only four were left to a plant. The second year he picked off all the blossoms and nipped off the ends of the bushes. They sent out many branches, and the third year he had a good crop of fine, healthy fruit. Perhaps it would have been as well to start new bushes, but he is under the impression that he gained something by saving a portion of the old ones.

Every garden ought to have its leach-barrel for the manufacture of liquid manure. Manure in the soil is good, but the application of it in a liquid form produces more satisfactory results. It is more immediate in its results, and none of it is wasted, as a good deal of that which is worked into the soil must be.

It is an easy matter to fit up a leach. Take any old barrel and set it on a sloping platform. This platform should be about a foot high—high enough to allow slipping a pail under it to catch the liquid in. This platform should be larger than the bottom of the barrel, with cleats nailed on the sides to prevent the liquid from running off. The front of it ought to be sloped, like an obtuse-angled letter V, with cleats fastened to it, but not coming quite together at the point. These conduct the manure to the opening left at the point where it falls into the pail placed for its reception. The bottom of the barrel should be filled with stones, brick or pottery, to keep the manure from packing down solidly and clogging up the holes which should be made for the escape of the liquid. On top of this drainage fill in manure from the cow stables, and pound it down well. Add water slowly at first to allow it to get thoroughly soaked through before leaching begins. When you notice that it begins to trickle out at the bottom of the barrel add it in greater quantities.

That which first runs off will be very strong. It will be about the color of thick coffee. Dilute it until it has an amber look. This will be quite strong enough for safety. Too strong a liquid manure is worse than none at all. When you use it apply close to the roots of the plants. It is too precious to be wasted by putting it where there are no roots to make use of it. Twice a week is often enough to apply it. This is the best of all fertilizers for pot plants. I would never advise any one having access to a barnyard to use the commercial fertilizers advertised as "plant food" and "food for flowers." These are good when you can't get something better, and the manure to be obtained from the barnyard is "something better" every time.

Many country people have not forgetten the "leach tub" of their grandmother's day, in which ashes were leached for soap making. These persons will understand just how to go to work to fit up a leach for manure, if the directions given above are not simple enough. AMATEUR.

FOREIGN NOTES.

VINE FUNGI.

In a late number of the *Revue Horticole*, a writer gives some mixtures proposed for the simultaneous treatment of vines for the destruction and prevention of the various mildews, rot., etc., viz.: the oidium, or powdery mildew, Uncinula spiralis; the downy mildew, Peronospora viticola; the black rot, Phoma uvicula; and the anthracnose, Sphaceloma ampelinum. These mixtures have been proposed by Em. Petit, who has had experience in the use of the several substances separately for the several diseases named. After comparative trials, repeated for three years, M. Petit has concluded that the remedy of greatest efficacy for anthracnose is the sulphate of iron. Without waiting for the appearance of the disease it is well to make, in the spring, a preventive washing of the vines with a solution of sulphate of iron.

For downy mildew the copper mixtures have proved to produce the best effect. They are employed either as a simple solution or as in eau celeste, or preferably, as in the Bordeaux mixture.

On the contrary, for the powdery mildew, the flowers of sulphur have proved most efficient. It has been proved, however, that the copper solutions act very perceptibly on the powdery mildew.

The copper mixtures have equally a very marked action on anthracnose, and therefore it is clear that they ought to form a principal part in a treatment destined to combat simultaneously the different maladies of the vine. The following liquid mixture contains all the materials employed for the treatment of the different maladies, and the proportion of substances are proper ones: 1 lb. sulphate of copper; 1¼ lbs. carbonate of soda (commercial crystals); 3 lbs. sulphate of iron; 5 lbs. pulverized sulphur; 100 lbs. water. For a stronger solution take the same quantity of water —100 lbs.—and use 2 lbs sulphate of copper, 2½ lbs. carbonate of soda, 4 lbs sulphate of iron, and 10 lbs. flowers of sulphur. In vineyards where all these maladies prevail, as they sometimes do, it would be well to try the effect of treating the vines with one of the compounds by spraying them several times two or three weeks apart, commencing in the spring, soon after the foliage appears.

There is but little doubt that the continued use during the season of either of the mixtures given above would have the tendency to check the development of brown and black rot and also the powdery mildew, and as anthracnose is spreading through our vineyards, the use of sulphate of iron in connection with copper solution in some such manner as here indicated will probably become a necessity.

PITCHER PLANTS.

Of late years it has been assumed by botanists that the pitchers of Nepenthes acted in the same way that the stomach of an animal does when it comes in contact with food; that is to say, that a ferment was produced which effected the solution of the entrapped insects, and rendered its absorption possible. There were various reasons that rendered this probable, though by some, the fact was never accepted. The means of research have been greatly perfected of late years, thanks to M. Pasteur and his co-workers, and by availing himself of them, M. Raphael Dubois (*Comptes Rendus*, August 11), arrives at the conclusion that: 1, The liquid contained in the pitchers of Nepenthes contains no digestive juice comparable to pepsin, and that the Nepenthes are not carniverous. 2, That the phenomena of disaggregation or mock-digestion observed by Sir Joseph Hooker were due to the action of micro-organisms (bacteria), introduced from without, and not to a secretion from the plant. Of what use, therefore, are the pitchers? and what is the meaning of the fluid they contain? *Gardeners' Chronicle.*

THE HARE'S-FOOT FERNS.

The following account of the Davallias, or Hare's-Foot Ferns and the illustration is taken from the London *Garden*:

These ferns are everybody's favorites,

and certainly most beautiful. A selection can be made for almost any position in a fern house, and if properly chosen for the stove, the intermediate house, or the greenhouse, all will give satisfaction. Thus the one here represented, D. canariensis, thrives well in the greenhouse, and it is extremely interesting on account of its being the only species in the genus which is said to grow wild in Europe. It is said to be found in Spain and Portugal, although I have never seen specimens of the plant from these districts, but I have received it from Madeira and the Canary Islands. A glance at our illustration will give a good idea of its appearance. One of the very handsomest of all the genus is D. fijiensis and its variety plumosa. These plants have a less robust rhizome, or creeping stem, than the species here represented; the fronds are much larger and feathery, more finely divided, and very rich deep green in color. Two other excellent kinds for the greenhouse fernery are D. Mariesi and its variety cristata. They are both beautiful evergreen plants from Japan, and they are very suitable for cultivation in baskets, their slender creeping stems spreading in every direction and producing an abundance of beautiful bright green fronds, which in the variety cristata have all the pinnæ, as well as the tips of the fronds, ornamented with crests and tassels. For baskets of larger dimensions nothing can exceed the beauty of D. tenuifolia Veitchi, the long fronds and the peculiar formation of the segments being exceedingly beautiful and distinct. The plant has a wide distribution. Yet another kind, D. Tyermani, succeeds well in the greenhouse, making slender rhizomes, which are densely clothed with large silvery white scales, which render it very conspicuous. The fronds are very thick and fleshy, and last a long time after being cut. This makes a beautiful basket plant, whilst for cultivation in the stove it will be difficult to find anything to surpass D. pallida, perhaps better known as D. Mooreana.

DAVALLIA CANARIENSIS.

POTATO DISEASE IN IRELAND.

It is reported that the rot is rapidly destroying the growing crop of potatoes in Ireland. The condition is said to be worse than at any time since the great potato famine in 1847 and 1848.

PLEASANT GOSSIP.

TWO ROSES OR ONE!

Fifteen years ago, or thereabouts, I got a dozen roses from an eastern grower, and during the first winter kept them in the house. They proved to be the plague of my life, as it was a constant fight with green-fly, red spider, mildew, etc., all winter. In the spring they were put out in the ground, with the solemn assurance that, whether they lived or died, they could never bask in the sunshine of our windows again. Two of the dozen survived the first winter, and one of the two grew thriftily and strong, while the other gave up the struggle after a year or two. The survivor fought its own battle of life in the grass that took possession of the abandoned bed, and after several years became a large, strong root, and began to give us very large, very double, and very brilliant crimson roses all summer. Thus it forced itself upon our attention as a very valuable plant; but its name was lost and we have never yet found any one who could tell what it was. It is now tenderly cared for among others since acquired, and in favorable seasons there is not a day when it has not buds or bloom from June to freezing up time in November.

Last year, I put in a Dinsmore among others, and now that it is fully established and blooming freely, I discover that it is so exactly a duplicate of my old-time pet that if blooms, foliage and wood of the two be cut and placed together, none but an expert, if anybody, can tell them apart.

Now the query arises: Is the alledged new rose, Dinsmore, really a new production, or is it the old sort put out under a new name? If the former, then nature has repeated herself very exactly; but, be that as it may—be it two roses or one—they are of priceless value to the lover of roses, for they are truly perpetual, with all that the name implies, and are hardy enough, so that with a few leaves, brush or other covering they stand the rigors of our Northern Illinois winters, and give us roses all summer and autumn.

In conclusion, I would ask if any reader of VICK's can give me the name of my old favorite that is so exactly duplicated in the Dinsmore, and was in market at least fifteen years ago? It blooms in clusters, on short stems, on the end of the very thorny canes, from three to a dozen in a cluster. If the old name cannot be learned, I think I will have to rechristen it to suit myself.

T. H. M., *Sterling, Illinois.*

THE CORTLAND GRAPE.

We have received from R. LAMBERT & SONS, of Windsor, Ontario, a basket of the Cortland grapes, which was sent on the 23d of August. Evidently the fruit would have improved somewhat by remaining on the vines three or four days longer. However, there is no question as to the earliness of this variety, it has no equal in this respect.

It belongs to the Champion type of grape, and we can perceive little or no difference in the quality of these two varieties. Bunch small, compact, berries of medium size, color black, pulp not tenacious, acid and little or no flavor.

The following is the history of the variety, as given by R. LAMBERT & SONS, who are now propagating it and offering it for sale:

"This grape was originated by Mr. M. F. CLEARY, of Cortland, N. Y., chief gardener to the estate of the late Mr. RANDALL, of Cortland. Mr. CLEARY had charge of the greenhouses, gardens, orchards, and other fruits generally grown at such places. Cortland is situated centrally in the State of New York, and of such a high altitude that grapes cannot ripen on account of early frost about the first of September each year. He was led to experiment in trying to produce a seedling that would ripen its fruit before this early frost came, and from a large number of seedlings he fruited this was the only one that ripened its fruit before

the first of September, to escape being cut down. Everything in Cortland is late in coming to maturity on account of its being such a high, bleak locality, some two thousand feet above sea level, which, no doubt, accounts for the Cortland vine being of such a hardy nature."

It has been fruited at Windsor, Ontario, since 1882, and from that year to 1889, seven seasons, the dates of ripening given are for each year respectively, as follows: August 15th, 17th, 15th, 18th, 15th, 10th and 19th. "In comparing this grape with the Concord," say the firm mentioned above, "it is from twenty to twenty-five days earlier, and in 1888 it was a full month earlier with us." If extreme earliness is the most desirable feature in a grape, then this variety possesses it in a high degree, but we think the public will demand a better quality.

POISON IVY—VIRGINIA CREEPER.

I enclose leaves of two species of ivy. I wish you would inform me, through the MAGAZINE, if you can, which is the true ivy, and which the so called poison ivy. I notice one plant has five parts to the leaf, the other three. If you have cuts of the leaves I think it would oblige many to publish them, as we have both in abundance, but few care to make use of it for fear of getting the poison ivy.

VIRGINIA CREEPER.

And while you are pushing forward our native wild plants, put in a little boom for the sarsaparilla vine. While everything else is burnt up by the drought, the sarsaparilla holds itself up as if there was no such thing as a drought. I plucked three shoots growing up together, Sunday, all about sixteen inches high, and put them in water; to-day, Friday, they are as bright and fresh as when I plucked them. They are in a little Swiss wood vase, with glass water holder. I wish I was able to sketch or photo it and send you the same, I think you would say, with me, that it presents as pretty and refreshing a picture as one could well look at on a day like this the thermometer standing 105° in the shade.

W. J. B., *Kansas City, Mo.*

In compliance with the above request we here give the illustrations which clearly show the differences in foliage between the poison ivy, Rhus Toxicodendron and the Virginia creeper, or American ivy, Ampelopsis quinquefolia. The leaves of each are formed respectively with three and five leaflets, and a very little examination of the plants will enable one to distinguish between them. Of course, neither of these plants is the "true ivy."

POISON IVY.

The sarsaparilla vine mentioned by our correspondent is a species of smilax, often known by the common name of greenbrier.

FLORAL NOTES.

For mealy bugs on plants use fir-tree oil, which may be obtained at any druggist's. A teaspoonful to a gallon of water is the right proportion. It is applied with a syringe and with considerable force.

It is best not to let the Tradescantia, or Wandering Jew, bloom, as it is valuable chiefly for its trailing growth.

Moisture is as indispensable to plants as to human beings. Moisture is best

applied by syringing and washing the leaves of the plants, as the leaves have veins and pores which are the lungs of the plant. The soil in the pot should be watered as needed, but not until dry, and then it should be thoroughly done, so as to wet the whole of the earth around the roots. It is well, also, to furnish moisture by keeping a dish of water near the plants, as nearly all plants like a moist air, and will breathe this moisture through their leaves. The water should be changed daily.

Bowker's plant food is very fine for flowering plants, and may be obtained of seedsmen and druggists.

A quarter of an ounce of sulphide of potash dissolved in a gallon of water will destroy mildew on roses and chrysanthemums. It is best to apply it to the foliage by a fine syringe.

Achania malvaviscus is a shrubby plant which blooms the year round. It will stand much from lack of good care, and should be in every plant collection. It is seldom troubled with insects of any kind, but it does not like to do without water.

Browallia elata alba is an excellent plant for window culture if it can have plenty of heat, full exposure to the sun and a moist atmosphere.

Anthericum variegatum is a splendid plant for the ordinary living-room. It resembles somewhat the Pandanus utilis in shape. The leaves are edged with white; the outer leaves are drooping and the center ones stand upright. It is a lovely plant for a vase, as the foliage is so abundant. It has a small, white flower borne on a good sized spike, and will do well in a north window. It requires plenty of water.

While the weather is still pleasant the plants intended for winter culture should be removed to the house gradually, so as to become used to their new location by degrees before all the fires are started. The plants which have been out of doors all summer should be brought to the piazza, or some sheltered position early in the fall. As the nights become more cool they must be taken in the house at sundown, and when the weather is very cool and windy, or with a cold rain, they should be kept indoors during the day.

Freesia refracta alba is a charming plant grown from a bulb. It has long, narrow leaves, resembling those of a lily. It bears lovely, pure white flowers, trumpet-shaped, and they are borne in racemes. Its fragrance is exquisite and not to be described, as the fragrance from one flower alone can be discerned throughout an entire room. The flowers are very good for cutting, as they remain fresh for several days if placed in water. As the bulbs are quite small in size a six-inch jar will hold from six to nine bulbs. They may be treated like the oxalis, which is well known by most flower lovers.

Cacti are queer plants, but are worthy of culture for the sake of watching their queer growth, if for no other reason, to say nothing of the beauty of their bloom.

Hyacinths that are grown in glasses should be carefully watched, as the water must be kept even as possible with the top of the glass. When fresh water is added it should be warm, so as not to check the growth of roots or top by cold water.

If any plants are troubled with scale insects, they should be treated at once, as they are filthy and spread rapidly. They are overcome best by scraping the worst off with a knife, then wash the bark thoroughly once a week with whale oil soap. It is better to have one nice, thrifty plant than a floral hospital. No matter how common the variety, any kind of plant is beautiful if grown to perfection.

Morning Glories make fine plants for hanging baskets or bracket pots in winter. They may also be grown upright in pots and trained to a trellis, and will be a perfect mass of bloom. In the house the flowers are only about half as large as when out of doors, and they remain open all day. Seed for winter blooming may be sown in September or even as late as October.

Another excellent annual for winter bloom is Eschscholtzia Californica, which has pretty bright yellow flowers, which in winter will make a spot of glory in our living-rooms. The seeds must be planted in the pots in which they are to grow the last of September or in October. They come into bloom in a few weeks, and will bloom all winter.

Plants purchased from the greenhouse and brought into the dry atmos-

phere of our living-rooms are apt to have a serious set-back or die outright.

GRETA.

THE DROUGHT.

The crops of vegetables have been greatly injured throughout all the west by the drought of July and August. Reports from Mississippi to Minnesota, and from Ohio to Oregon, from parties intending to make exhibits of vegetables at the Illinois State Fair, all complain, and many intending exhibitors have nothing to show. There are, however, some exceptions, and the display of vegetables at Peoria will undoubtedly be the finest in the whole country this season.

GEN. GRANT SWEET POTATOES.

This fine sweet potato deserves general notice. Its qualities are distinctive and valuable. In the first place, it is an early variety, enduring much drouth and coming into use early in August. Its nature is peculiar, for it grows so unlike the ordinary sweet potato as to render it much of a curiosity. The stalk does not vine, but forms a bush of vigorous growth with large, finely shaped leaves, red veined, and growing its tubers deeply and closely at the stalk and clustered, like our common Irish potato. The tubers are of great size, more round than long, of a light yellow color, but when cooked of a fine deep yellow. The quality is of the best, the flavor exceedingly rich, the flesh dry and mealy, and will be found in the spring, for they are excellent keepers, to exceed even their fine eating in the fall. We have tried many sorts, but have never found any to excel them either in quality or keeping. In their manner of growth they are less trouble to cultivate, as they do not vine, and will protect themselves finely from drouth by the multitude, large size and thickness of their leaves. It speaks well for them that we have been able to raise such fine specimens in a soil not especially adapted for dry and mealy sweet potatoes, when a more sandy soil would doubtless develop still better qualities.

Among other favorites are Early Peabody, a very early sweet potato, of light red color, extra quality, and fit for use before the General Grant, but smaller in size.

Another variety, and always liked, is the Blue sweet potato, which, while its habit is to wander off from the vines and form tubers anywhere and everywhere, of long shape, crooked and peculiar, has a flesh so fine that we cannot afford to do without it. When the outer skin of light blue is removed for cooking the inner coating is a pale bluish purple, while the flesh when cooked is peculiarly white, with pale streaks of purple sometimes through it. A very old variety.

H. K.

MADAME GEORGES BRUANT.

A writer in *Garden and Forest* remarking on the qualities of this hybrid of Rosa rugosa, which was figured and described in a former volume of this MAGAZINE, says: "This fine rose will soon find its way in every good collection. It came through the past two winters in fine style, though many varieties considered absolutely iron-clad have succumbed to the trying extremes of temperature. How it will endure the test of twenty degrees below zero remains to be proved. When its clusters of immense, dazzling white flowers open against its profusion of dark foliage it is lovely to behold, and its odor is exquisite. The open rose is very beautiful though only semi-double, for its texture is like satin and its color the driven snow."

PURPLE AMPELOPSIS.

A new variety of Ampelopsis has been sent out the past season, by an English establishment, which is said to be a plant of much merit. It is a seedling of A. Veitchii, the Japan Ampelopsis, and resembles it in all respects except in the color of the foliage, which has a purplish shade, and is retained through summer and autumn. It is called A. Veitchii purpurea.

CHINESE SACRED LILY AGAIN.

I have just been reading M. D. WELLCOME'S description of this much talked of plant. Some time in February, I think, I received a package of the bulbs, and, like the writer referred to, I can saythat, while the single was heavily flowered, very fragrant and a perfect success, the double was equally as profuse a bloomer and much more fragrant. I much pre-

fered it, although the single is a beautiful narcissus-like flower.

To me the growth of the bulbs was phenomenal, mine being one mass of bloom in less than twenty days from the time the dried up, onion-like bulbs were planted. The planting seemed to be a small matter, and yet compared with the success of two of my neighbors whose bulbs came from my package, and who gave theirs more elaborate attention, it must have been of vital importance.

The history of two will answer for all. One being set on sand in a shallow butter dish, and the other in its cover turned bottom upwards and then filled with water. In one week we removed them to a couple of glass dishes with greater depth.

Again they swelled out, so we set them in a still broader vessel. So, you see, they had not much rest, but no change affected their growth. They only asked for warmth, sand and water, and how they grew.

We were not careful to give them a great amount of sun, as the vivid green and marvelous growth of the foliage and flower stalks did not seem to demand it. At night I set them near my stove to prevent their chilling.

In June, not knowing just how to manage or what to do with my bulbs, I dried them and put them away for winter blooming. How they will come out remains to be seen.

MRS. M. J. SMITH.

BLACK CURRANTS.

The inquiry in the September number of the MAGAZINE as to what black currants are good for, moves me to tell what I know on the subject.

I admit, on the start, that I think most people have to cultivate a taste for them, but that is easily acquired and they seem to grow steadily in favor the more they are used.

We use them for the table, with sugar, the same as red ones, but for this purpose they need to be thoroughly ripe; we make jam of them, and can them for winter. Jelly and cordial, which are highly esteemed for medicinal purposes, can also be made from them. The jelly is thought to be particularly beneficial in cases of sore throat, and the cordial in summer complaints.

It has always seemed strange to me that more attention has not been paid to them, for their cultivation is attended with very little trouble, and we have always found a ready sale for them in market. In fact, with us, the demand has always been greater than the supply, and the price obtained a little better than that paid for red ones.

The bushes are easily propagated from cuttings, which can be planted either in the fall or in the spring. With proper cultivation they make rapid growth and bear quite abundantly the second season after planting. They are long-lived, some on our premises being more than twelve years old to my certain knowledge, and they still bear fruit in great profusion. They are not troubled by the currant worm. Some think that by planting red currant bushes among the black ones the former escape the ravages of the currant worm, but I am not quite prepared to vouch for that. So far as I know, they are not troubled by any blight or disease.

Currants are so much more easily picked than strawberries or raspberries that they find favor in my sight. The stooping position necessary in picking strawberries is very tiresome, and one comes out of the raspberry season with hands scratched and full of thorns and garments as badly rent as if she had sojourned forty years in the wilderness.

To those who are raising small fruits for market, I would say try some black currants. If you have any English customers you are sure of a market for them.

F. B.

PAPER WHITE NARCISSUS.

For winter blooming, it seems to me, nothing can give more pleasure or greater satisfaction than the Paper White Narcissus. I have planted them both in water and in earth, and have succeeded well in both ways. I prefer, though, to grow them in water, for then they are sure to be wet enough.

The first year I tried to raise some I planted them in pots, watered them every day, but the buds all blasted. The next year I had a pot given me with the bulbs all in blossom, and I found the soil perfectly saturated with water. That was a revelation. I learned then that the earth did not want to be damp or moist, but

wet. Since that time I have had no trouble in growing them, and as they seem to live on water, I think it is just as well to grow them in it. Last year I grew them in a large glass dish, about eight inches deep, with a spreading top, with a few pebbles in the bottom, and water not quite to the top of the bulbs, a dozen bulbs in it, and they flowered beautifully. Many of the bulbs had two and three trusses of blossoms, and from fifteen to twenty blossoms on a stalk. At the same time I had a Chinese Sacred Lily in bloom, and the narcissus far exceeded the lily in beauty, fragrance and number of blossoms. In fact, the lily was nothing in comparison with the narcissus.

Later, I grew some Grand Soleil d' Or narcissus in water, and succeeded equally well with them. I do not know whether the Paper White and the Soleil d' Or, if planted together, would blossom at the same time or not, but if they would, I think the effect would be very fine. I have had the Paper White blossom in four weeks from time of planting. I find it does not do to plant them in too shallow a dish, as the roots grow so long and thick that they force the bulb out of the dish, if it is not quite deep.

If grown in earth, several bulbs can be put in a pot, according to size, and, if kept wet enough, they will undoubtedly give great satisfaction. F. B.

WHAT MAKES THE LILIES ACT SO?

Last year I planted a number of Lilium lancifolium (præcox) album and rubrum. The latter came up and bloomed splendidly; not one album appeared. Now I know that if the leopard cannot change his spots, the lily can do so. Not one red spotted lily came this year, but every bulb produced the most beautiful white flowers with dead white fringe inside over a lovely green stripe down the center of each petal.

H. *New Bedford, Mass.*

DATE PALMS.

The United States government, through the Agricultural Department, has imported, within the last three or four months, some of the finest varieties of date bearing palms. One importation is from Algeria, another from Cairo, Egypt; other importations are expected from the region of the Euphrates and Tigris rivers, and from Persia. The plants will be sent to California, New Mexico and Arizona, and planted at the points and under the conditions most favorable for their success. When they have arrived at a bearing state, and the qualities of their fruit is learned, those which are most desirable will be propagated and disseminated.

WHAT AILS THE ASTERS?

I have between three hundred and four hundred aster plants. Quite a number of them show imperfections. A few of them do not develop any flower buds, but more show their imperfection by the bloom being partly uncolored, and, again, on the same plant, some of the flowers will be perfect while others do not color at all. The uncolored flowers do not develop into full size. The plants seem to be healthy and strong.

M. A., *Englewood, Ill.*

Asters are not doing well this year; the season has much to do with the failure, yet we find there is a difference in location, soil, etc., low ground doing poorly on account of extremely wet spring and early summer.

BLACK CURRANTS.

We were not very much surprised to find S. F. D.'s question on black currants in your MAGAZINE of last month. As a rule, the Americans dislike them; on the other hand, we think very highly of them, as we are English. We have some large trees in our garden, and we use the currants for canning and pies, mixed with red raspberries. We also make black currant jelly, which is an excellent remedy for sore throat, diphtheria, etc.

J. E., *Corning. N. Y.*

BLACK CURRANT FRUIT.

I was not exactly astonished, but I did smile, at "S. F. D.'s" disgusted comments on the black currant—so many have said the same thing. Mother used to think her list of preserves was not complete without that same black currant. I am not sure that it is as good in any other way as in the old-fashioned preserve or in jelly. It is excellent in sickness. It was the only preserve that my mother took with her when visiting the sick, but we were very fond of them for tea, and how we did do away with her big boiled pudding filled with black currants. I wish I had some bushes here, and I wish

that S. F. D. was a near neighbor, I would send him a pudding that after eating would set him to work cultivating his black currants with a will. I believe that unless one has English blood he has to cultivate a taste for that most excellent fruit. H. J. W., *Olalla, Oreg.*

THE ICELAND POPPY.

This is one of the hardy flowers for the open ground which is less known than it deserves to be. It is a true biennial. Seed sown in the open ground, in spring, will make plants that bloom in autumn, and which live over winter, and then begin blooming again in the spring and continue through the summer. Their blooming capacity is very great—they load themselves with flowers. As may be noticed, they are in three colors—a rich golden yellow, an orange, and white. This is one of the plants whose buds will open after they are cut. If taken off just before they are ready to bloom and placed in water they will open fully and remain in good condition a fair length of time. The easy, crimped and curving lines of the petals give the flowers a graceful form, and a vase of them is very ornamental. The plants appear best in the garden when a considerable number of them are set close together, forming a mass. The seeds germinate freely, and after the flowers fall the seeds quickly ripen and fall to the ground and spring up thickly. In this way, by taking them up and transplanting, a stock is easily renewed. In transplanting they may be set as closely as six inches apart. Although called the Iceland Poppy, Papaver nudicaule is indigenous to Siberia, and this is another instance of the errors and unreliability of popular names.

GERANIUM AND HELIOTROPE.

I come to you, as so many have done, for advice about my plants. I have read the talk on geraniums in the August number of the MAGAZINE, but it is not sufficiently explicit for me. Which is the better way to keep them, to pot or hang up in the cellar? Should they be in a light or dark cellar? Should the leaves be left on or clipped when hung up. Should they be allowed to frost slightly before pulling? Should they be sprinkled during the winter? Should they be soaked in water before setting out in the spring?

And how can I make my heliotrope bloom? It is a large, thrifty plant; last winter it was in a six-inch pot, and now is set in a bed in a sunny spot, with good rich soil and plenty of water, but it has not bloomed in two years. What should be the treatment this fall? M. E. L., *Ottawa, Kans.*

To keep geraniums well during winter hung up in the cellar probably requires some experience, and something depends on the temperature and the humidity of the air, also whether the plants are near the top or bottom of the cellar space. Only actual trial would prove the right place and the capabilities of each cellar. The safer way is, no doubt, to take up the plants with some soil and set them in boxes of soil. Some water can be given to settle the soil about the roots, and then the plants be allowed to stand without further attention for several days or a week to dry off. Let the leaves become yellow. Then shorten in the branches, taking off at least two-thirds of their length, and then set them away in the cellar and supply no water during the winter unless the soil appears to be getting dust dry, and in that case give only enough to moisten it a little. A place only moderately light is best. The plants should not be allowed to be frosted before lifting, but if any parts become frozen they must be cut off. The plants will need no soaking before planting or potting in the spring. When transplanted water them.

Take up the Heliotrope and pot it in a rather small sized pot and keep it growing. Give it a good sunny spot and moderately warm.

PRUNING AND TRAINING VINES.

The correspondents who have favored us with the articles on the above subject in this number are persons who are practically conversant with the topics on which they have written, and the different methods of pruning and training employed in the Hudson River region and the Chautauqua vineyards are clearly set forth. In our next issue we shall have a communication from the celebrated vineyardist, T. V. MUNSON, of Texas, showing the method he practices, and which he considers has important advantages. Should any of our readers who may be interested in these articles, find in them points which are not sufficiently well understood, we trust they will make whatever inquiries may be desired, through our columns, and further explanations will undoubtedly be given.

INSECTS ON GERANIUMS.

In your September number Mrs. Dr. HOPKINS states that no insect bothers the geranium. I have sent you a small box containing some insects that have been eating the inside of the buds. I have tried a mixture of flour and Paris green with only fair success. My geranium bed contains over three dozen plants, and they are all eaten the same way. Please can you give me some information in regard to them. H. S. M., *Lebanon, Ill.*

Syringing the plants with an emulsion of kerosene will destroy the insects. Take a quarter pound of hard soap—whale oil soap is best, but any good brown soap will do—dissolve it in two quarts of hot water, and pour into it one pint of kerosene oil. The liquid should be sharply stirred, or shaken, or churned until the mixture is complete, and then add to it five quarts more of water, and syringe or sprinkle the plants with it.

VICK'S MAGAZINE PREMIUMS.

With two more issues the present volume of the MAGAZINE will close, and, as our subscribers know, all those whose subscriptions terminate with the last number of the year are discontinued unless a renewal is made before the January number is sent out.

With our next volume we shall again offer a copy of the beautiful illustrated poem, "Myself" to each subscriber, thus giving a chance to new subscribers to obtain a copy of it. To our present subscribers who already have it, and may not want a second copy, we shall give the privilege of selecting either one of two books which are of practical value to plant growers. These books are, first, *Practical Garden Points*, and secondly, the *A,B,C of Strawberry Culture*. The first mentioned book contains chapters on Village Improvements, the Culture of the Gloxinia, the Cineraria, Annuals in the Winter Window Garden, Winter Supply of Violets and Pansies, the Calceolaria, the Cyclamen, the Rose as a House Plant, the Strawberry, the Raspberry for Market, the Blackberry, Apples, Grape Vines, Mushroom Growing, Asparagus, Peas, Onion Culture, Cabbage, Celery, Keeping Celery in Winter, and Root Crops. All the subjects are fully and carefully treated by writers having practical experience.

The *A,B,C of Strawberry Culture* is a book just published. The author is T. B. TERRY, a well known fruit-grower of Ohio, who fully understands his subject, and in this book Mr. T. has embodied the knowledge and the experience about the cultivation of the strawberry which he has been years in acquiring. No one can read it and put its instruction into practice without becoming a skillful strawberry grower.

Clubs of five subscribers without premiums will be sent for five dollars, and any additional number at the same rate.

For a club of four subscribers at $1.25 each, each subscriber having a premium, the club sender will be entitled to one of our Portfolios of Rare and Beautiful Flowers, in large quarto form, with six large, beautifully colored plates with letter press descriptions.

For a club of five subscribers at $1.25 each, each subscriber having a premium, the club sender will be entitled to a copy of the new book, *Home Floriculture*, by E. E. REXFORD, which is to be issued in December. This will be a valuable work on the cultivation of garden and house plants. The book is to be elegantly illustrated and handsomely bound. All who are acquainted with Mr. R.'s pleasant style of writing will know that his book will be attractive, and as it is written from his own experience it will have a thoroughly practical value. Our space here does not admit of detail in the description of it, but it will be very full in all that pertains to the most desirable of cultivated flowering plants.

Any person sending one hundred subscriptions *at* $1.25 each, without premium, on or before June 1st, 1891, a cash prize of $75 will be given, and for fifty subscriptions at the same rate a prize of $30 in cash.

For a club of one hundred subscribers at $1.25 each, each subscriber to have one of the premiums offered to single subscribers, a cash prize of $30 will be given, and for fifty subscribers at the same rate, a cash prize of $13.

To the person sending the largest number of subscribers, as above, over one hundred, an extra prize of $13 will be given, and in the same manner for the largest number, over fifty and less than one hundred, there will be an additional prize of $5. We hope to have the help of our friends everywhere in extending the circulation of the MAGAZINE by saying a good word.

OUR YOUNG PEOPLE.

LUCILLE'S BURGLAR.

"At last the folks are off. Good riddance to their dear, precious selves. Of course, there would be no living without the main stays of the household. Nothing could go on right, long at a time. They comprise compass, chart, anchor and all, of the home ship. But it's nice to be thrown on one's responsibility occasionally. I'm sure it develops self-reliance. Now we're going to have a real cozy time. I've looked forward to this for weeks. Everything in good shape to secure it. But, O my, Mary, do step back to the front door and lock it, as security against tramps and burglars."

"What, here in the country, Lucille?"

"Yes, here in the country; I've always had a chronic dread of burglars, as you must remember of me during our college days."

"Yes, and with no possibility of burglars there."

"How then, Mary, do you account for that brooch of yours having disappeared as it did?"

"Is it possible I forgot to tell you! After you left I found it on the neck of a dress that had been hung away for the summer. You remember your lost knife and bracelet that so mysteriously disappeared, and which you found at last in the pocket of a discarded dress?"

"Yes, and recently I missed my *porte-monnaie* for several days. Thorough search for it seemed fruitless, and so I spoke to our domestic of my loss, telling her that no one had been in my room but she and myself since the day I had last used it. It seems that the girl cried all night afterward, telling mamma in the morning that if we robbed a poor girl of her good name we robbed her of all she had in the world. The result was, the whole house was in trouble about it, and papa gave me such a reprimand as he had never done before. The *porte-monnaie* was found afterward under the edge of the dresser, and I was heartily ashamed of the whole thing. I tried to give it to the girl, with its contents, as restitution, but she scorned it, saying that she hated the sight of anything that had given her such trouble, declaring it would 'pizen' her to touch it."

"Your experience, Lucille, is very similar to some of my own. Mamma says I am too ready to attribute the results of my own carelessness to others, the moment I miss a thing from its usual place. It is so easy, you know, to suspect some one tampering with our private possessions. Mamma is severe in her judgments. She says we are in part responsible for the dishonesty of our domestics if we leave costly trifles lying around too freely. She says they are often ignorant and morally weak, and may grow to covet things beyond their power of resistance if they need only to reach out a hand in order to possess themselves of the treasures. So I'm gradually learning to keep my valuables out of sight when not in use, and thus 'keep temptation out of their way,' as mamma expresses it."

"Well, Mary, since we're exchanging experiences on this novel subject, I'll mention another of mine. I used to have a fashion of wearing a bank bill pinned to my bodice half a day at a time, if it were not convenient to put it away at once. We had all sorts of hired help around in those days, and papa told me that any such display of money was not only vulgar but indiscreet, and that thereafter he should relieve me of any funds I had not time to take care of properly. But all this is irrelevant as regards burglars. *They* expect to hunt for valuables and money till they find them. We are always reading accounts of their depredations. The country is full of them. I always search my closets every night lest one may have somehow got into the house. The modern beadstead is too low or I should look under that. Papa is always trying to laugh me out of such apprehensions—says it's an unhealthful condition of mind, and all that. But I can't help it. Facts are on my side. The reason I'm assured of a good time now,

in his absence, is because cousin Howard is coming to stay with us each night, and our brave, brawny Bridget fears nothing. I think she'd prove a savage in ferocity, were any one to molest us. So, you see, Mary, how protected we shall be."

"Why, Lucille, I'd no idea you were really such a coward. I wouldn't be the least afraid to stay here entirely alone, if necessary."

"You reckless girl! Just wait till you've been gagged and then tied hand and foot to a chair or bedstead, while the miscreants rob you of your choicest possessions right before your face and eyes, and then go rummaging all over the house, and afterward leave for parts unknown, while you sit there bound and gagged—the most forlorn and wretched of mortals—until some neighbor shall happen in and find you much more dead than alive."

"You don't mean, Lucille, that this ever happened to you?"

"N–not exactly; but happened to other people, and will happen again. You, yourself may be the next victim."

"Nonsense! No wonder your father thinks it hurtful to foster such fears. At this rate it will become a mania with you. Just consider that you and I have lived all these years with no such experience, nor have any of our friends had such, and yet how you go on. Now, if you expect me to remain here, you mustn't mention such subjects again. I won't have it. I'm ready to enjoy, with all my heart, the 'cozy time' you have planned for us—have brought a new 'study' with me, that I thought you'd like to copy. You said all the conditions favored our having a good time. Keep that thought uppermost."

"I will, and thank you. You always were my balance wheel when we were together. But my plans for pleasure are so often frustrated that I lose faith in fair seeming. Now then, for the new 'study.' Come right into my work shop. I don't call it studio. Everything is in delightful confusion—delightful, because I can always lay hands on anything I want. See, my easel is always here; my table, with every accessory for water color painting, there; sketch books piled up on the stand near by it; geometrical apparatus for enlarging and diminishing pictures, making diagrams, etc., in that box beside them—everything you can desire for a little choice work, if you care for it. As for me, I only play artist, like a thousand other girls who learn mechanically how to outline and lay on colors from a picture or study before them—itself a copy, perhaps. I believe that in the soul of the born artist true images from nature leap into form and color, and that his brain is quickened to direct eye and hand so unerringly in the transfer to canvass as to beget a quick response of approval in the heart of every intelligent beholder. I think you've somewhat of that skill. I have not. Bridget is to fetch some fresh marsh lilies for your special delectation when done with her dinner work. But here she comes, in a flurry.

"What now, Bridget?"

"It's me sisther, ma'am—she hov hod a sthroke, an' Oi'm sint fer to luk afther her an' the chiller, Och, ma'am uts noigh doft Oi om wid the trouble."

"You know, Bridget, you can't leave me now while the folks are away. I'm sorry, but it can't be helped. Why do you bring that pot-plant in here?"

"Oi kont l'ave ye now! Masilf didn't ax ye cud I l'ave, with dith stondin ot me sisther's dure. When yersilf be's called it's yer noighest o' kin'll ston' by ye. Wud ye pl'ase, ma'am, luk afther this bit o' shamrock, an' guv it a dhrap o' wather now an'thin? It kem all the way from Ire*land*, from aff me mither's grave. Oi kont hov it doi."

"You'd better take it with you; I'll have enough to attend to without that."

"Lucille! Give it to me, Bridget. Of course, Miss Lucille expects you to go to your sister. Go on; perhaps you'll find her better."

"My balance wheel, again. Of course, I know you're right. Didn't I tell you that something always happens to upset my plans for pleasure?"

"Don't look at it in that way. We both get a world of pleasure right along in life without having made plans for it. It comes to us unsought."

"How logical you are. Well, now we can march to the kitchen, and begin where Bridget left off. * * * Yes, here's the straining dish pan, dish washing just began. A lovely lady editor, recently responding to a correspondent, intimates that a busy housewife with active brain may receive inspiration from the

dish water in which her hands are immersed. It sounds dreadfully prosaic; but natures like her's seem capable of evolving the beautiful and good out of everything useful. So, I trust something mollifying, at least, may be imparted to me at once; for here goes--rattle, splash. I'll grasp your hand occasionally so that you may share the influence."

"Thank you, keep your wet hands to yourself while I'm wiping dishes. I warn you not to ruffle my composure, for I intend to try your brushes and colors presently, despite hindrances."

"Charming! Then, toward evening, we'll take a stroll and gather the lilies ourselves."

"Ah, these lilies are lovely, Mary, in this tall vase. You must copy them—vase and all, before they fade. I hear horses' feet—look out; it's high time Howard should be here."

"The rider, Lucille, is an ordinary looking man, seems like a workman. He is waiting now for you to come out—has a letter or note in his hand."

"Some one for papa, I suppose. You step to the door, please, and let me finish arranging the lilies."

* * * "Here, the note is for you, Lucille."

"Indeed; and I heard the man gallop away. My heart misgives me. But let's read what's up now: 'My Dear Niece—Sorry to tell you—Howard broke a leg—course can't go to you—nor can I leave him to do so. But you've Bridget for a rock of defense—though you're safe as if your father were at home—nothing to fear in any case. With regrets all around—Uncle Zeph.' * * * 'Bridget!' 'Safe!' * * * *Mary, did you ever know the like?* Safe! we're never safe. It's only by chance we're not disturbed every night."

"There you go again, Lucille. If you don't want to make me cross, be your sane self at once."

"Well, well, I will. I don't want to be absurd. Poor Howard."

"Yes, 'poor Howard;' he has something to worry about, and we haven't."

"Now, Mary, you go all around with me to make sure that every window and door is made fast up stairs and down. we'll have our tea, then read awhile or try our new music and then go to dreamland."

"Here we are, shut into my room, at last; you are to sleep with me, you know, for safety. Just think, ten o'clock, and nothing happened yet. I've looked in my closet, and there's no one in there; ——."

"Of *course*, there isn't."

"You needn't be so snappish—one never knows for sure. Now I'll barricade the door, so that if any one should open it, the things would tumble over and wake us.',

"Can't you lock the door?"

"Why, yes; but burglars can open locks like magic. If I tilt these chairs upside down against the door and pile others on top—an extra one for Howard's absence, and another for Bridget's, you know—and they should be pushed over, the noise would frighten a burglar out of his wits, and he'd be glad to leave. Then how thankful we should be. I think it's the duty of unprotected girls to use measures of ordinary prudence for safety. * * * There; now every thing is beautifully secure. We can lie down and go right to sleep, like kittens."

"Mary, 'sh, 'sh; Mary, don't speak loud; are you awake? 'sh, 'sh."

"What are you sitting up in bed for, Lucille? Do lie down."

"'Sh—listen; there's a man climbing into a window down in my workshop. I know there is. O, dear! O, dear! what will we do?';

"I know there isn't. Nobody ——." [*Crash, smash, in the room below, and a leap to the ground outside.*]

O, Mary, that horrible crash! Hold me tight, I tremble so. You'll believe—at last—that I know something. What does it mean? What can we do?"

"Be quiet, and let me think. * * Now I know; it was Bridget's pot of shamrock fell to the floor and broke."

"What made it fall? It stood on the broad window sill,—Oh, Mary, that very window we forgot to fasten—the house is full of burglars—I know it is. I heard a man climb in—and so—did you—you know you—did. Don't get up—don't leave me—let's die—together."

"Lucille, do collect your senses and listen to me. If there *was* a man here

he frightened himself away with the noise he made. He'll not return, you may be sure. He'll suppose he awakened a house full of people. If you'll let me, I'll go down and prospect."

"Never! O, how thankful I am you took — the shamrock — in charge. Perhaps—perhaps it has saved our lives."

"Anyway, Lucille, we're entirely safe in this room. But you shake the bed so with your trembling that I'm expecting the barricade to tumble down every moment."

"That would frighten me — just to death—I should know—exactly what it means. O-o-o-o-o."

"Listen; I hear a galloping horse. * * * It's coming nearer * * * coming here. I'll look out the window; let go of me * * * Lucille, your uncle is calling to you. He wants you to let him in."

"Go down, quick, Mary; I can't. Thank God, he's come. I fear Howard is very ill."

[Mary returns.] "Your uncle says that Howard became uneasy because of your timidity, and sent their hired man here, with orders to sleep on the hall lounge. Finding it all shut up, the ignorant fellow thought to disturb no one by climbing in a window, and, strangely enough, found one unfastened. But the crash he made appalled him, fearing he'd destroyed something very valuable. So he made good his retreat and reported. Your uncle will remain till dawn, and then return to Howard, whom he reports as doing very well."

"And so, Mary, there was no burglar after all. I do believe this will be my cure."

MARIA BARRETT BUTLER.

BIRD, BEE AND FLOWER.

Not far from the door,
A sweet flower-bell
Peeps forth from its stalk,
Of beauty to tell;
A humming-bird comes,
Sips daily, with glee,
For each other born
They surely must be.

I hie me away
To others, with care,
But ere they are reached
The dear bird is there,
A-kissing each lip,
In fancy, so free!
For birds those bright blooms
Most surely must be.

As up from the ground
A modest, young flower
First ventures to claim
Th' sunlight its dower,
'Tis quickly espied
With rollicksome glee,
And blossom and bird
Each other's must be.

Oh! rover, so gay,
In yonder fair dell,
A lover, more plain,
Is bound by the spell;
And lover am I—
Thou plainly may'st see—
Of Flora's fair offspring
As well as the bee.

We'll quarrel not o'er
These beauties of earth,
This brightness of bloom,
Where pleasure has birth;
The heavens mete out
These treasures so free,
There's bounty enough
For bird, bee and me.

H. A. M. A.

THE TROUBLED RAIN-DROP.

A PERSIAN FABLE.

A rain-drop, toward the sea departing,
Its coming fate lamented sore;
Since soon, with whelming waters blending,
It must be lost forevermore;

Merged in the boundless waste of ocean,
No one could its existence guess;
No special form, nor phase, nor motion,
Would it thenceforth again possess.

But Heaven decreed that to an oyster
The anxious drop should find its way,
Where, prisoned in its living cloister,
It formed a pearl of purest ray.

How oft do men prejudge the mission,
Ordained for them, a thankless thing!
When God designs some blest condition
Shall from the lot appointed spring!

P. B. S.

EDITOR'S MISCELLANY.

HORTICULTURE AND THE COLUMBIAN EXPOSITION.

Delegates from many of the horticultural and fruit-growers' societies, florists' clubs and associations met in Chicago, August 27th, and organized a society which is to be known as the Columbian Horticultural Association, and to remain an active organization until the close of the World's Columbian Exposition. All the elected officers are to remain permanently until the close of the Exposition. The officers elected are, President, S. M. Emery, Lake City, Minnesota; Vice President, C. L. Watrous, Des Moines, Iowa; Secretary, H. B. Beaty, Oil City, Pennsylvania; Assistant Secretary, G. H. Grant, Chicago, Illinois; Treasurer, M. A. Thayer, Sparta, Wisconsin. A committee was appointed to correspond with the Executive Department of the Columbian Exposition, and it laid before that body a summary of the plans in regard to the horticultural features of the exhibition, and recommended to their favorable consideration the appointment of the following named persons for the offices designated: For Commissioner of Horticulture, Parker Earle, Ocean Springs, Mississippi; for Superintendent of Floriculture and Landscape Gardening, James D. Raynolds, Riverside, Illinois; for Superintendent of Pomology, G. B. Brackett, Denmark, Iowa; for Superintendent of Nursery and Forestry products, George B. Thomas, West Chester, Pennsylvania; for Superintendent of Seeds and Vegetable Department, J. C. Vaughan, Chicago, Illinois.

THE CENTURY MAGAZINE.

The twentieth anniversary of *The Century*, and the beginning of its forty-first half yearly volume, is celebrated by the publication of the next (November) number. The date will be marked by an issue of special interest, and the twenty-first year of the magazine will contain a wealth and variety of literary and artistic material. It is impossible to mention all the good things which *The Century* holds in store for its next volume, but that they are many it is needless to say.

The Century during the coming year, among its other art features, will aim to present in every number some striking example of the best contemporary work of American artists—engraved by the leading American wood-engravers after the originals. The first of this series will be Mr. Will Low's oil painting, exhibited at the Society of American Artists, and entitled "The Portrait." Remember that new subscriptions should begin with November.

FRUITS IN THE FAR NORTH.

What the prospect is of fruit raising in Manitoba is shown by a communication of Thomas Franklin, of Stonewall, Manitoba, to *Farm, Stock and Home*. He states that there was an abundant yield this season of the Juneberry or Saskatoon, which is the local name for it there. Good crops are reported of cultivated strawberries, currants, raspberries and blackberries. The Turner raspberry succeeds best. Doolittle Black Cap stands without protection. Cuthbert and Golden Queen with winter protection are doing pretty well. Ancient Briton, Snyder and Taylor's Prolific blackberries are mentioned as doing well. Some of the hardiest varieties of plums, pears, cherries and apples are having a trial and promise well. As ornamental trees, the White Elm, Ash, Soft Maple and Box Elder succeed very well, as also do the Russian Poplars and Willows.

ST. NICHOLAS FOR 1890.

Keeping in view, first, last and all the time, the tastes and interests of the boys and girls themselves, *St. Nicholas* has obtained—in addition to short stories, descriptive papers, and sketches of travel and adventure—an unusual number of interesting long stories. *St. Nicholas* has never been more alive and alert than it is now. The new volume promises to excel all that have preceded it. To provide for the very youngest readers or listeners, *The Very Little Folks' Pages*, which, of late, have been crowded out, are to be restored. All the favorite departments will be kept up. In short, nothing that the children have learned to expect in *St. Nicholas* shall be forgotten.

THE A,B,C OF STRAWBERRY CULTURE,

For Farmers, Village People, and Small Growers. A Book for Beginners.

This is the title of a valuable treatise on strawberry cultivation, by T. B. Terry, the well known Ohio fruit grower. The book is a record of practical experience, and as such must prove of the highest value to all for whom it is intended. All the points of the subject are well covered, and it will be difficult for the most exacting questioner to draw out a topic which is not fully explained. The style of the book is entertaining, and its pages will be read with eager interest. The illustrations are numerous and valuable.

HENRY BENNETT.

We regret to announce the death, in August last, of Henry Bennett, the well known English rosarian. Mr. Bennett was an enthusiastic raiser of new varieties of roses, having in the last ten years originated a large number of fine varieties. Among those which he sent out may be named Mrs. John Laing, Her Majesty, Viscountess Folkestone, Lady Mary FitzWilliam, Earl of Pembroke, Princess Beatrice, Cleopatra and Captain Hayward.

THE NEW YORK STATE FAIR.

The New York State Fair, at the time we go to press, is in progress. The exhibits in most departments are large, but especially so in that of live stock. The flower and fruit department is quite respectable for this remarkably unfavorable season. The weather of the opening week was as bad as can well be imagined, and the grounds were at one time flooded by the drenching rain storms. The second week opens with a better prospect.

"AGRICULTURAL CHILI"

Is the title of Theodore Child's South American article in the October number of *Harper's Magazine*. Mr. Child visited several of the rich agricultural provinces of Chili, and made a personal study of their resources, and of the methods of farming, fruit-growing, etc., pursued by the inhabitants. The article is fully illustrated from drawings by leading American artists.

THE FURMAN BOILER.

The Herendeen Manufacturing Company, of Geneva, N. Y., were awarded the first prize to their Furman Hot-water Boiler, at the late convention of the Society of American Florists, in Boston.

SINGLE PYRETHRUM.